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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,449	01/06/2004	Russell D. Braunling	H0006146-1633	2586

7590 10/12/2005

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EXAMINER	
WALLENHORST, MAUREEN	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,449	BRAUNLING ET AL.	
	Examiner	Art Unit	
	Maureen M. Wallenhorst	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 10-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicants are notified that prosecution in the instant application is being re-opened in order to institute the new grounds of rejection set forth below. The amendments to the claims submitted on September 27, 2005 have been entered.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-8 and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byrne et al in view of Davis et al (US Patent no. 5,859,537, submitted in the Information Disclosure Statement filed on March 11, 2005).

Byrne et al teach of a corrosion monitor system and method of use that facilitates the detection and monitoring of material corrosion in remote areas such as aircraft surfaces. The system comprises a sensor that operates on the principal that corrosion of a metallic conductor will cause a corresponding increase in the cross-sectional electrical resistance of that conductor. This increase in resistance is due to actual material loss during the corrosion of the metallic surface. The sensor comprises a coupon 100 made of a metallic material that is the same as that of a structure being monitored with the sensor. Coupon 100 is divided into two halves 102 and 104 that are separated by a channel 106. Half 104 is covered by a coating 108 and serves as a reference portion or conductor, whereas half 102 is exposed to the environment to serve as a test portion or conductor. Leads 112 and 114 are connected to the halves 102, 104 so as to supply voltage thereto. The system monitors relative changes in the electrical resistance of the test conductor by comparing the voltage across it to that of the reference conductor. This comparison method enables the system to detect very small incremental changes in the resistance of the test conductor. Byrne et al also teach that the corrosion monitor contains a thermistor therein to measure the sensor temperature and compensate the corrosion measurements for the effects of ambient temperature. Byrne et al teach that the corrosion sensor records changes in resistance on a periodic basis over an extended period of time such as once a day. See lines 54-68 in column 1, lines 1-32 in column 2, lines 15-65 in column 3 and lines 12-32 in column 4 of Byrne et al. Byrne et al also teach that the corrosion monitor comprises a measuring and data storage

device in the form of a controller 216 that includes software to measure the resistance of the test conductor and the reference conductor as well as memory to store the measured resistance values. See lines 29-68 in column 7 and lines 1-10 in column 8 of Bryne et al. Bryne et al also teach that the corrosion monitoring system can be connected to an external computer for post-processing of the data and interpretation. See lines 30-33 in column 2 of Bryne et al. In-situ corrosion rates are calculated automatically for the sensor by measuring the relative change in response signal as a function of exposure time. See lines 33-36 in column 9 of Bryne et al. Bryne et al teach that the sensor may be fabricated from a thin-film of steel such as carbon steel. See lines 16-22 in column 13 of Bryne et al. Bryne et al also teach that the response of the corrosion sensor can be compared to expected levels of corrosion severity of the material being monitored when located in different environments including different temperature and humidity conditions. See lines 56-65 in column 15 and lines 1-16 in column 16 of Bryne et al. Therefore, the corrosion monitor and method of use taught by Byrne et al comprises a metallic element having a test portion and a reference portion, wherein the metallic element is placed in an environment in which a piece of equipment (i.e. an aircraft structure) is located, a measuring and data storage device (i.e. a controller) configured to measure the resistance of the test portion and the reference portion, and a computer configured to determine the amount of corrosion experienced by the metallic element based on the resistances measured with the controller. Byrne et al fail to teach of correlating the amount of corrosion measured with the metallic element with a maintenance schedule for the piece of equipment.

Davis et al teach of an electrochemical corrosion sensor that is used to monitor and measure the amount of corrosion on a painted and bonded metal structure such as an aircraft,

vehicle, ship, etc. The sensor comprises a metal coupon having electrodes thereon that is placed in the environment in which a piece of equipment to be monitored is present. The impedance of the sensor is measured periodically in order to determine the amount of corrosion experienced by the piece of equipment in the environment over time. Davis et al teach that the electrochemical sensor allows maintenance inspectors to detect the early stages of degradation or corrosion before serious deterioration has occurred. Davis et al teach that the results of the sensor are used to schedule maintenance on a piece of equipment based on the actual condition of the structure rather than based on an elapsed time schedule. Thus, the results of the electrochemical sensor allow an "as required" maintenance schedule for a piece of equipment, allow performance of repairs to a piece of equipment before it becomes too costly to perform them, and provide quantitative data regarding corrosion rates and mechanisms of degradation. See lines 15-32 in column 1 and lines 15-49 in column 3 of Davis et al.

Based upon the combination of Bryne et al and Davis et al, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to correlate the amount of corrosion for a piece of equipment measured with the metallic element taught by Byrne et al with a maintenance schedule for the piece of equipment since Davis et al teach that it is known and beneficial in the art to use the results of corrosion monitoring obtained with an electrical coupon-type sensor, similar to the sensor disclosed by Bryne et al, for obtaining an "as required" maintenance schedule for a piece of equipment and for scheduling maintenance on a piece of equipment based on the actual condition of the structure rather than based on an elapsed time schedule. It also would have been obvious to one of ordinary skill in the art to validate the amount of corrosion measured with the device taught by Bryne et al based upon conditions of the

environment such as temperature and humidity since Bryne et al teach that temperature and humidity conditions cause certain levels of corrosion to a metal object, thus affecting the overall corrosion rate of the object.

6. Applicant's arguments with respect to claims 1-8 and 10-18 in the response received on September 27, 2005 have been considered but are moot in view of the new ground(s) of rejection set forth above. Prosecution in the instant application is re-opened, and this Office action is non-final.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen M. Wallenhorst whose telephone number is 571-272-1266. The examiner can normally be reached on Monday-Wednesday from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden, can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maureen M. Wallenhorst
Primary Examiner
Art Unit 1743

mmw

October 5, 2005

Maureen M. Wallenhorst
MAUREEN M. WALLENHORST
PRIMARY EXAMINER
GROUP [redacted] 1700